<u>Claims</u>:

Having thus described our invention, what we claim as new, and desire to secure by letters Patent is:

1  1. A data charging system comprising:
2     a content generator for generating contents containing
3     object data,
4
5     a recording medium for recording the charging data
6     used for charging for said object data and the
7     recognition data used for recognition of the object
8     data, and
9
10    a data charging apparatus for charging for the use of
11    said object data by using said charging data and said
12    recognition data recorded;
13
14    wherein said data charging apparatus comprises:
15
16    data reading logic for reading said recognition data
17    and said charging data from said recording medium,
18
19    a separator for separating said object data from said
20    contents,
21
22    an recognition logic for recognizing said separated
23    object data by using said recognition data read out,
24
25    an accounting logic for charging for the use of said
26    recognized object data by using said charging data
27    read out, and

|    |    |                                                                             |
|----|----|-----------------------------------------------------------------------------|
| 28 |    |                                                                             |
| 29 |    | a writing logic for writing, as said charging data,                         |
| 30 |    | the results of charging for the use of said recognized                      |
| 31 |    | object data into said recording medium.                                     |

2. A content generator for embedding digital watermarks in object data and generating contents in a data charging system which records, on a recording medium, the charging data used for charging for object data contained in said contents and the recognition data used for recognizing the object data and charges only for the use of the object data embedded with said digital watermarks by using said charging data and said recognition data recorded.

3. In a data charging system which records, on a recording medium, the charging data used for charging for object data contained in said contents and the recognition data used for recognizing the object data and charges for the use of said object data by using said charging data and said recognition data recorded,

a data charging apparatus comprising:

a data reading logic for reading said recognition data and said charging data from said recording medium,

a separator for separating said object data from said contents,

16  an recognition logic for recognizing said separated
17  object data by using said recognition data read out,
18
19  an accounting logic for charging for the use of said
20  recognized object data by using said charging data
21  read out, and
22
23  a writing logic for writing, as said charging data,
24  the results of charging for the use of said recognized
25  object data into said recording medium.

1  4.  The data charging apparatus according to Claim 3,
2      wherein said contents comprise said object data and
3      said recognition data for recognizing this object
4      data,
5
6      said separator separates said object data and said
7      recognition data from said contents,
8
9      said recognition logic recognizes said object data,
10     based on said recognition data separated from said
11     contents and on said recognition data read out from
12     said recording medium, and
13
14     said accounting logic charges for said object data by
15     using said charging data read out.

1  5.  The data charging apparatus according to Claim 3,
2      further comprising a watermarking logic for embedding
3      digital watermarks in said object data separated from
4      said contents, wherein said separator separates said

JA998-216                    -56-

5     object data and said recognition data from said

6     contents,

7

8     said recognition logic recognizes said object data,

9     based on said recognition data separated from said

10    contents and on said recognition data read out from

11    said recording medium, and

12

13    said accounting logic charges for said object data

14    embedded with said digital watermarks.

1   6.   The data charging apparatus according to Claim 3,

2     wherein a digital watermark is embedded in said object

3     data in said contents,

4

5     said data charging apparatus further comprising a

6     means for detecting if said object data is embedded

7     with said digital watermark,

8

9     said separator separating said object data and said

10    recognition data from said contents,

11

12    said recognition logic recognizing said object data,

13    based on said recognition data separated from said

14    contents and on said recognition data read out from

15    said recording medium, and

16

17    said accounting logic charging for said object data

18    only if said object data is found to be embedded with

19    said digital watermark.

7. The data charging apparatus according to Claim 3,
   wherein said charging data recorded on said recording
   medium contains at least payment data which indicates
   the payment made in advance for the use of said object
   data, and

   said accounting logic charges for the use of said
   object data within the limits of the amount indicated
   by said payment data contained in said charging data.

8. The data charging apparatus according to Claim 7,
   wherein said charging data recorded on said recording
   medium further contains unit price data representing
   the accounting unit for the use of said object data
   and the price corresponding to the accounting unit,

   said data charging apparatus comprising an accounting
   unit detection logic for detecting unit accounting
   amount data which represents the amount of said
   accounting unit for the object data separated from
   said contents,

   said accounting logic charging within the limits of
   the amount indicated by said payment data, based on
   said unit price data contained in said charging data
   read out and on the unit accounting amount data
   detected.

9. The data charging apparatus according to Claim 7,
   wherein said charging data recorded on said recording
   medium further contains unit price data representing

JA998-216                    -58-

|       |                                                                      |
|-------|----------------------------------------------------------------------|
| 4     | the accounting unit for the use of said object data                  |
| 5     | and the price corresponding to the accounting unit as                |
| 6     | well as accounting range data which represents the                   |
| 7     | range of one billing,                                                |
| 8     |                                                                      |
| 9     | said data charging apparatus comprising an accounting                |
| 10    | unit detection logic for detecting unit accounting                   |
| 11    | amount data which represents the amount of said                      |
| 12    | accounting unit for the object data separated from                   |
| 13    | said contents, wherein                                               |
| 14    |                                                                      |
| 15    | said accounting logic charging each time within the                  |
| 16    | limits of the amount indicated by said payment data,                 |
| 17    | based on said unit price data contained in said                      |
| 18    | charging data read out and on the unit accounting                    |
| 19    | amount data detected.                                                |

10. A data charging method for generating contents which
    contain object data and recognition data used for the
    recognition of this object data, recording the
    charging data used for charging for said object data
    and the recognition data used for recognition of the
    object data, and charging for the use of said object
    data by using said charging data and said recognition
    data recorded, comprising the steps of:

    reading said recognition data and said charging data
    from said recording medium,

    separating said object data from said contents,

| | | |
|---|---|---|
| 15 | | recognizing said separated object data by using said |
| 16 | | recognition data read out, |
| 17 | | |
| 18 | | charging for the use of said recognized object data |
| 19 | | by using said charging data read out; and |
| 20 | | |
| 21 | | writing, as said charging data, the results of |
| 22 | | charging for the use of said recognized object data |
| 23 | | into said recording medium. |
| | | |
| 1 | 11. | A data charging method according to Claim 10, wherein |
| 2 | | said object data in said contents are embedded with |
| 3 | | digital watermarks, comprising the steps of: |
| 4 | | |
| 5 | | separating said object data and said recognition data |
| 6 | | from said contents; |
| 7 | | |
| 8 | | recognizing said object data, based on said |
| 9 | | recognition data separated from said contents and on |
| 10 | | said recognition data read out from said recording |
| 11 | | medium; |
| 12 | | |
| 13 | | detecting said digital watermark embedded in said |
| 14 | | object data; and |
| 15 | | |
| 16 | | charging for said recognized object data only by |
| 17 | | using said charging data read out if said object data |
| 18 | | is found to be embedded with said digital watermark. |
| | | |
| 1 | 12. | A data charging method according to Claim 10, |
| 2 | | comprising the steps of: |

3

4    separating said object data and said recognition data

5    from said contents;

6

7    recognizing said object data, based on said

8    recognition data separated from said contents and on

9    said recognition data read out from said recording

10   medium;

11

12   embedding digital watermarks in said separated object

13   data; and

14

15   charging for the use of the object data embedded with

16   said digital watermarks by using said charging data

17   read out.


1    13.   In a data charging apparatus of a data charging

2          system which records, on a recording medium, the

3          charging data used for charging for the object data

4          contained in contents and the recognition data used

5          for recognition of the object data, and charges for

6          the use of said object data by using said charging

7          data and said recognition data recorded;

8

9          a computer program product enabling a computer to

10         execute the steps of:

11

12         reading said recognition data and said charging data

13         from the recording medium,

14

| | |
|---|---|
| 15 | separating said object data from said contents, |
| 16 | |
| 17 | recognizing said separated object data by using said |
| 18 | recognition data read out, |
| 19 | |
| 20 | charging for the use of said recognized object data |
| 21 | by using said charging data read out, and |
| 22 | |
| 23 | writing, as said charging data, the results of |
| 24 | charging for the use of said recognized object data |
| 25 | into said recording medium. |

| | | |
|---|---|---|
| 1 | 14. | The computer program product according to Claim 13, |
| 2 | | wherein said contents contain said object data and |
| 3 | | said recognition data used for recognition of the |
| 4 | | object data, |
| 5 | | |
| 6 | | said object data and said recognition data are |
| 7 | | separated from said contents in said separation step, |
| 8 | | |
| 9 | | said object data is recognized in said recognition |
| 10 | | step, based on said recognition data separated from |
| 11 | | said contents and on said recognition data read out |
| 12 | | from the recording medium, and |
| 13 | | |
| 14 | | a charge is made for said object data in said |
| 15 | | charging step by using said charging data read out. |

| | | |
|---|---|---|
| 1 | 15. | The computer program product according to Claim 13, |
| 2 | | wherein the computer is made to execute the step of |

3    embedding digital watermarks in said object data
4    separated from said contents,
5
6    said object data and said recognition data are
7    separated from said contents in said separation step,
8
9    said object data is recognized in said recognition
10   step, based on said recognition data separated from
11   said contents and on said recognition data read out
12   from the recording medium, and
13
14   a charge is made for said object data embedded with
15   said digital watermarks in said charging step.

1    16.   The computer program product according to Claim 13,
2          wherein said object data in said contents are
3          embedded with digital watermarks,
4
5    the computer is further made to execute the step of
6    detecting that said object data is embedded with said
7    digital watermarks,
8
9    said object data and said recognition data are
10   separated from said contents in said separation step,
11
12   said object data is recognized in said recognition
13   step, based on said recognition data separated from
14   said contents and on said recognition data read out
15   from the recording medium, and
16

JA998-216                          -63-

17    a charge is made for said object data in said
18    charging step only if said object data is found to be
19    embedded with said digital watermark.

17.    The computer program product according to Claim 13,
1      wherein said charging data recorded on said recording
2      medium contains at least payment data which indicates
3      the payment made in advance for the use of said
4      object data, and
5
6
7      prices are charged in said charging step for the use
8      of said object data within the limits of the amount
9      indicated by said payment data contained in said
10     charging data.

18.    The computer program product according to Claim 17,
1      wherein said charging data recorded on said recording
2      medium further contains unit price data representing
3      the accounting unit for the use of said object data
4      and the price corresponding to the accounting unit,
5      and
6
7
8      a computer is made to execute the step of detecting
9      unit accounting amount data which represents the
10     amount of said accounting unit for the object data
11     separated from said contents, and
12
13     prices are charged for the use of said object data
14     within the limits of the amount indicated by said
15     payment data, based on said unit price data contained
16     in said charging data read out and on the unit

1  accounting amount data detected in said charging
2  step.

1  19.  The computer program product according to Claim 17,
2       wherein said charging data recorded on said recording
3       medium further contains unit price data representing
4       the accounting unit for the use of said object data
5       and the price corresponding to the accounting unit as
6       well as accounting range data which represents the
7       range of one billing, and
8
9       a computer is made to execute the step of detecting
10      unit accounting amount data which represents the
11      amount of said accounting unit for the object data
12      separated from said contents, and
13
14      a price is charged each time for the use of said
15      object data within the limits of the amount indicated
16      by said payment data, based on said unit price data
17      contained in said charging data read out and on the
18      unit accounting amount data detected.